

AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims in the application, including the status of all claims and current amendments:

1-21 (canceled).

22 (currently amended). A plasticizer as in claim ~~19~~ 36 comprising a citrate.

23 (previously presented). A plasticizer as in claim 22 wherein the citrate is acetyltriethyl citrate.

24 (previously presented). A plasticizer as in claim 22 wherein the citrate is acetyltri-n-butyl citrate.

25 (currently amended). A plasticizer as in claim ~~19~~ 36 comprising an adipate.

26 (previously presented). A plasticizer as in claim 25 wherein the adipate is diisobutyl adipate.

27 (currently amended). A single base propellant free of high energy plasticizers comprising by weight:

(a) from about 93 to about 97% high nitrogen nitrocellulose;

(b) from about 2-5% of a non-energetic plasticizer as defined in claim ~~19~~ 36; and

(c) about 2% dibutylphthalate.

28 (previously presented). A dinitrotoluene and dibutyl phthalate-free, single base propellant comprising by weight:

- (a) from about 88% to about 90% high nitrogen (about 13.2%N) nitrocellulose; and
- (b) from about 4% to about 10% of a non-energetic citrate plasticizer selected from acetyltriethyl citrate, acetyltri-n-butyl citrate, triethyl citrate, tributyl citrate and mixtures thereof.

29 (previously presented). A propellant as in claim 28 further comprising about 1% by weight ethyl centralite.

30 (previously presented). A propellant as in claim 28 further comprising up to about 1% by weight of K_2SO_4 or KNO_3 .

31 (previously presented). A propellant as in claim 29 further comprising up to about 1% by weight of K_2SO_4 or KNO_3 .

32 (previously presented). A propellant as in claim 28 wherein the citrate is acetyltriethyl citrate.

33 (previously presented). A propellant as in claim 28 wherein the non-energetic plasticizer is present in an amount of about 10% by weight and the nitrocellulose is present in an amount of about 88% by weight.

34 (previously presented). A single base propellant as in claim 27 wherein said nitrocellulose is about 13.2%N.

35 (new). An efficient non-energetic plasticizer suitable for plasticizing high nitrogen nitrocellulose (about 13.2%N) in a dinitrotoluene-free single based base propellant formulation, which is suitable for use as a projectile-firing propellant, said plasticizer consisting of material selected from citrate

compounds, adipate compounds and combinations thereof, wherein the efficiency of said non-energetic plasticizer enables substitution of a smaller amount of non-energetic plasticizer for all energetic plasticizers normally included in projectile-firing single base propellants, including dinitrotoluene, while maintaining a desired level of mechanical properties in the propellant formulation.

36(new). An efficient non-energetic plasticizer suitable for plasticizing high nitrogen nitrocellulose (about 13.2%N) in a dinitrotoluene-free single based base propellant formulation, which is suitable for use as a projectile-firing propellant, said plasticizer consisting of material selected from acetyltriethyl citrate, acetyltri-n-butyl citrate, triethyl citrate, tributyl citrate, diisobutyl adipate, diisoctyl adipate and mixtures thereof, wherein the efficiency of said non-energetic plasticizer enables substitution of a smaller amount of non-energetic plasticizer for all high energetic plasticizers, including dinitrotoluene normally included in projectile-firing single base propellants, while maintaining a desired level of mechanical properties in the propellant formulation.